

ENTERED



OIPE

RAW SEQUENCE LISTING

DATE: 05/23/2002

PATENT APPLICATION: US/09/923,844B

TIME: 17:50:12

Input Set : A:\Seqlist.txt

Output Set: N:\CRF3\05232002\I923844B.raw

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4 <110> APPLICANT: Pioneer Hi-Bred International, Inc.
5     Bao, Zhongmeng
6     Lu, Guihua
8 <120> TITLE OF INVENTION: Sclerotinia-inducible Genes and
9     Promoters and Their Uses
11 <130> FILE REFERENCE: 35718/234631
C--> 13 <140> CURRENT APPLICATION NUMBER: US/09/923,844B
C--> 13 <141> CURRENT FILING DATE: 2001-08-07
13 <150> PRIOR APPLICATION NUMBER: US 60/224,603
14 <151> PRIOR FILING DATE: 2000-08-11
16 <160> NUMBER OF SEQ ID NOS: 20
18 <170> SOFTWARE: FastSEQ for Windows Version 4.0
20 <210> SEQ ID NO: 1
21 <211> LENGTH: 1271
22 <212> TYPE: DNA
23 <213> ORGANISM: Helianthus annuus
25 <220> FEATURE:
26 <221> NAME/KEY: CDS
27 <222> LOCATION: (1)...(1114)
29 <400> SEQUENCE: 1
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31 Met Glu Phe Leu Lys Ala Pro Thr Leu Leu Leu Val Ile Phe Ser Leu
32 1             5             10             15
34 gcc att tgt agt cct ata agc gcc caa aac aaa ggg ggt tat tgg cct      96
35 Ala Ile Cys Ser Pro Ile Ser Ala Gln Asn Lys Gly Gly Tyr Trp Pro
36             20             25             30
38 tca tgg gcc caa gat ttt ttg cca cca tcc aat att caa acc gcg tat      144
39 Ser Trp Ala Gln Asp Phe Leu Pro Pro Ser Asn Ile Gln Thr Ala Tyr
40             35             40             45
42 ttc act cat gtt tat tat gct ttt ctc tcc cct aac aat gtc aca ttc      192
43 Phe Thr His Val Tyr Tyr Ala Phe Leu Ser Pro Asn Asn Val Thr Phe
44             50             55             60
46 caa ttc gac gtc cac cgg aca act gcg tct gcg ctc aat agc ttc aac      240
47 Gln Phe Asp Val His Arg Thr Thr Ala Ser Ala Leu Asn Ser Phe Asn
48 65             70             75             80
50 acc gcc ctt cac gga aag aat cca cct gtc aag acg ttg ttt tcc atc      288
51 Thr Ala Leu His Gly Lys Asn Pro Pro Val Lys Thr Leu Phe Ser Ile
52             85             90             95
54 ggt ggt gcc tcg gct ggc gta aaa caa ctc ttt tcc aag ttg gcc tcg      336
55 Gly Gly Gly Ser Ala Gly Val Lys Gln Leu Phe Ser Lys Leu Ala Ser
56             100            105            110
58 agc cct gcc tcg agg gcc gct ttt atc cgt tcg act ata caa gtg gcg      384
59 Ser Pro Gly Ser Arg Ala Ala Phe Ile Arg Ser Thr Ile Gln Val Ala

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60          115          120          125
62 cgg aac tat tac ttt gat gga gct gac ttg gat tgg gaa tat cct gaa 432
63 Arg Asn Tyr Tyr Phe Asp Gly Ala Asp Leu Asp Trp Glu Tyr Pro Glu
64          130          135          140
66 acc caa acc gat atg aac aac ttt gga ctc ttg ctt gac gag tgg cgt 480
67 Thr Gln Thr Asp Met Asn Asn Phe Gly Leu Leu Asp Glu Trp Arg
68 145          150          155          160
70 gtg gcg gtc aac aat gaa gcc aca tca act ggt aag cca cga ctt ctt 528
71 Val Ala Val Asn Asn Glu Ala Thr Ser Thr Gly Lys Pro Arg Leu Leu
72          165          170          175
74 ctt tca gcc gcc act cgt cat gag cca gaa gtt aga gac aat gga gtt 576
75 Leu Ser Ala Ala Thr Arg His Glu Pro Glu Val Arg Asp Asn Gly Val
76          180          185          190
78 gca aag tat cca gtg gca tcc ata aat aag aat ttg gat ggg ata aat 624
79 Ala Lys Tyr Pro Val Ala Ser Ile Asn Lys Asn Leu Asp Gly Ile Asn
80          195          200          205
82 gca atg tgt tat gat tat cac ggg cca tgg act ccg gat gca act ggg 672
83 Ala Met Cys Tyr Asp Tyr His Gly Pro Trp Thr Pro Asp Ala Thr Gly
84          210          215          220
86 gcc cca gcc gcg tta tat aat cca aat ggc agt ctt agc acc agt aac 720
87 Ala Pro Ala Ala Leu Tyr Asn Pro Asn Gly Ser Leu Ser Thr Ser Asn
88 225          230          235          240
90 ggg cta caa tca tgg atc agc gct ggg atc caa agg caa aag ttg gtg 768
91 Gly Leu Gln Ser Trp Ile Ser Ala Gly Ile Gln Arg Gln Lys Leu Val
92          245          250          255
94 atg ggc atg cca tta tat ggt tgg aca tgg aaa cta aag aat cca tct 816
95 Met Gly Met Pro Leu Tyr Gly Trp Thr Trp Lys Leu Lys Asn Pro Ser
96          260          265          270
98 gta aat ggt att ggg gct cca gct gcg ggt ata gga ccg ggt aat gag 864
99 Val Asn Gly Ile Gly Ala Pro Ala Ala Gly Ile Gly Pro Gly Asn Glu
100          275          280          285
102 gga gca atg ctt tac tca gaa gtg caa cag ttc aat gcc caa aat aac 912
103 Gly Ala Met Leu Tyr Ser Glu Val Gln Gln Phe Asn Ala Gln Asn Asn
104          290          295          300
106 gcc agg gtg gtt tat gac aca caa acc gta tct tat tat tct tac tca 960
107 Ala Arg Val Val Tyr Asp Thr Gln Thr Val Ser Tyr Tyr Ser Tyr Ser
108 305          310          315          320
110 gga acg act tgg att gga tat gac gat gtt aat tca gta cag aga aag 1008
111 Gly Thr Thr Trp Ile Gly Tyr Asp Asp Val Asn Ser Val Gln Arg Lys
112          325          330          335
114 gta caa tat gca aaa tca ctt aac ata gga gga tat ttc ttt tgg aca 1056
115 Val Gln Tyr Ala Lys Ser Leu Asn Ile Gly Gly Tyr Phe Phe Trp Thr
116          340          345          350
118 gcc gtc gcc gat caa gat tgg aaa atc tcg cga cta gct tcg cag aca 1104
119 Ala Val Gly Asp Gln Asp Trp Lys Ile Ser Arg Leu Ala Ser Gln Thr
120          355          360          365
122 tgg act gct t gaaaatcaat ggaggacaag tgaactagag gagtgaatt 1154
123 Trp Thr Ala
124          370

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126 aaataaaaag attatgttta ctgtgtgtat tcatgtcttt taataaatat tccagtttgc 1214
127 ttgtaaagtt taataaataa tacacaacca gatgtgttaa aaaaaaaaaa aaaaaaa 1271
129 <210> SEQ ID NO: 2
130 <211> LENGTH: 371
131 <212> TYPE: PRT
132 <213> ORGANISM: Helianthus annuus
134 <400> SEQUENCE: 2
135 Met Glu Phe Leu Lys Ala Pro Thr Leu Leu Leu Val Ile Phe Ser Leu
136 1 5 10 15
137 Ala Ile Cys Ser Pro Ile Ser Ala Gln Asn Lys Gly Gly Tyr Trp Pro
138 20 25 30
139 Ser Trp Ala Gln Asp Phe Leu Pro Pro Ser Asn Ile Gln Thr Ala Tyr
140 35 40 45
141 Phe Thr His Val Tyr Tyr Ala Phe Leu Ser Pro Asn Asn Val Thr Phe
142 50 55 60
143 Gln Phe Asp Val His Arg Thr Thr Ala Ser Ala Leu Asn Ser Phe Asn
144 65 70 75 80
145 Thr Ala Leu His Gly Lys Asn Pro Pro Val Lys Thr Leu Phe Ser Ile
146 85 90 95
147 Gly Gly Gly Ser Ala Gly Val Lys Gln Leu Phe Ser Lys Leu Ala Ser
148 100 105 110
149 Ser Pro Gly Ser Arg Ala Ala Phe Ile Arg Ser Thr Ile Gln Val Ala
150 115 120 125
151 Arg Asn Tyr Tyr Phe Asp Gly Ala Asp Leu Asp Trp Glu Tyr Pro Glu
152 130 135 140
153 Thr Gln Thr Asp Met Asn Asn Phe Gly Leu Leu Asp Glu Trp Arg
154 145 150 155 160
155 Val Ala Val Asn Asn Glu Ala Thr Ser Thr Gly Lys Pro Arg Leu Leu
156 165 170 175
157 Leu Ser Ala Ala Thr Arg His Glu Pro Glu Val Arg Asp Asn Gly Val
158 180 185 190
159 Ala Lys Tyr Pro Val Ala Ser Ile Asn Lys Asn Leu Asp Gly Ile Asn
160 195 200 205
161 Ala Met Cys Tyr Asp Tyr His Gly Pro Trp Thr Pro Asp Ala Thr Gly
162 210 215 220
163 Ala Pro Ala Ala Leu Tyr Asn Pro Asn Gly Ser Leu Ser Thr Ser Asn
164 225 230 235 240
165 Gly Leu Gln Ser Trp Ile Ser Ala Gly Ile Gln Arg Gln Lys Leu Val
166 245 250 255
167 Met Gly Met Pro Leu Tyr Gly Trp Thr Trp Lys Leu Lys Asn Pro Ser
168 260 265 270
169 Val Asn Gly Ile Gly Ala Pro Ala Ala Gly Ile Gly Pro Gly Asn Glu
170 275 280 285
171 Gly Ala Met Leu Tyr Ser Glu Val Gln Gln Phe Asn Ala Gln Asn Asn
172 290 295 300
173 Ala Arg Val Val Tyr Asp Thr Gln Thr Val Ser Tyr Tyr Ser Tyr Ser
174 305 310 315 320
175 Gly Thr Thr Trp Ile Gly Tyr Asp Asp Val Asn Ser Val Gln Arg Lys
176 325 330 335

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177 Val Gln Tyr Ala Lys Ser Leu Asn Ile Gly Gly Tyr Phe Phe Trp Thr
178           340           345           350
179 Ala Val Gly Asp Gln Asp Trp Lys Ile Ser Arg Leu Ala Ser Gln Thr
180           355           360           365
181 Trp Thr Ala
182           370
185 <210> SEQ ID NO: 3
186 <211> LENGTH: 475
187 <212> TYPE: DNA
188 <213> ORGANISM: Helianthus annuus
190 <220> FEATURE:
191 <221> NAME/KEY: CDS
192 <222> LOCATION: (34)...(325)
194 <400> SEQUENCE: 3
195 aacctctcta accactcctt aatccccctcc aaa atg aag gca ccc acc atg atc 54
196                               Met Lys Ala Pro Thr Met Ile
197                               1           5
199 tgc ttt ctg gtt gca gtt att gca gcc atg atg gtc ttt atg ggc caa 102
200 Cys Phe Leu Val Ala Val Ile Ala Ala Met Met Val Phe Met Gly Gln
201           10           15           20
203 ctc cct gca gcc act gcg gtg act tgc aac tac atg gag ctc gtg cca 150
204 Leu Pro Ala Ala Thr Ala Val Thr Cys Asn Tyr Met Glu Leu Val Pro
205           25           30           35
207 tgt gct ggt gcg atc tca tcg tct cag ccc cca tcg ggc tca tgc tgc 198
208 Cys Ala Gly Ala Ile Ser Ser Ser Gln Pro Pro Ser Gly Ser Cys Cys
209 40           45           50           55
211 agt aag gta agg gag cag agg ccg tgc ttc tgc gga tac ctc cgg aac 246
212 Ser Lys Val Arg Glu Gln Arg Pro Cys Phe Cys Gly Tyr Leu Arg Asn
213           60           65           70
215 ccg agt ctc cgt cag ttt gtc agc cca gct gca gcc cag aag att gct 294
216 Pro Ser Leu Arg Gln Phe Val Ser Pro Ala Ala Ala Gln Lys Ile Ala
217           75           80           85
219 agc cag tgt gga gtt agt att cca cag tgc t agaaataatg ttttggtttc 345
220 Ser Gln Cys Gly Val Ser Ile Pro Gln Cys
221           90           95
223 aacttatgat aatatcagat attggaatat tgtgaaataa agtgtgacat gcaactcctc 405
224 tactgatgta aggtgtttgt ttgtgttgtt aatgaaacaa aggtagtgtg tgggtgtgcaa 465
225 aaaaaaaaaa 475
227 <210> SEQ ID NO: 4
228 <211> LENGTH: 97
229 <212> TYPE: PRT
230 <213> ORGANISM: Helianthus annuus
232 <400> SEQUENCE: 4
233 Met Lys Ala Pro Thr Met Ile Cys Phe Leu Val Ala Val Ile Ala Ala
234 1           5           10           15
235 Met Met Val Phe Met Gly Gln Leu Pro Ala Ala Thr Ala Val Thr Cys
236           20           25           30
237 Asn Tyr Met Glu Leu Val Pro Cys Ala Gly Ala Ile Ser Ser Ser Gln
238           35           40           45

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239 Pro Pro Ser Gly Ser Cys Cys Ser Lys Val Arg Glu Gln Arg Pro Cys
 240 50 55 60
 241 Phe Cys Gly Tyr Leu Arg Asn Pro Ser Leu Arg Gln Phe Val Ser Pro
 242 65 70 75 80
 243 Ala Ala Ala Gln Lys Ile Ala Ser Gln Cys Gly Val Ser Ile Pro Gln
 244 85 90 95

245 Cys

249 <210> SEQ ID NO: 5

250 <211> LENGTH: 849

251 <212> TYPE: DNA

252 <213> ORGANISM: Helianthus annuus

254 <400> SEQUENCE: 5

255 cgtcgttttcg cttgcagggg gataaaagat aatatcatga tcaccattca tcacgcctaa 60
 256 aattcctcct cttagtcaat tgtgaatatt ttgtaattat tgtgtagact ataactgtta 120
 257 tctcttttga tatatttctc cttgtaatta gccttgtatt ccagtatata atgatatcaa 180
 258 aactctctaa tcaagcagag agagttccct gaattacatc accgctgcca ttttagtcca 240
 259 ctaagttaac ttcattccatt aattttgtta acgtgaaagg aaattcgggc attttctatg 300
 260 gccgaattgc cettgtagtt cacaaaatta catataaaac caccgaattg ccgttctcgt 360
 261 taacagaaaa aatgaatgaa gtttaaccag tggactaaaa tggcaacgat gaaaccattt 420
 262 tggatccaca ggcgaaaaat gaaacttttg gactaaactg gcgaaaaata aaacttttgg 480
 263 actaaactac atgaactaaa atggccttta actaaatttt aataaccgtt ttaattttat 540
 264 aaagagaaaa taaactttac aaaaagcctc gcttgtctat ttataaaga ttaaagttac 600
 265 ttgcacgttc aaacatatgt tactagatga atcaagagtc atgtacaact ctatgtttag 660
 266 ataaggttac tagatgaata tgagttagtc atctataagt ctatacttag aaagttcaaa 720
 267 gtcaatgatt tgtattgaat actgtttgta gttgaattca taaaagcttt gaatactgtt 780
 268 ttagttgaa ttcataaaag ctcgagtata agagatcatg ggattcctcg agtattacaa 840
 269 cacacgatg 849

271 <210> SEQ ID NO: 6

272 <211> LENGTH: 1089

273 <212> TYPE: DNA

274 <213> ORGANISM: Helianthus annuus

276 <400> SEQUENCE: 6

277 atcctaactac ctcaaacttt atctaattca tcaacacaaac ggagggtttg ttatatttgt 60
 278 ttggtccatc caaaaggaca aaaatgcact tcatcttaac aaaaaaaaaa aaaaaaaaaa 120
 279 ctaagttagt gatttggatg aaaatgacaa acaaaaggac aaaaatgcac ttcactctaa 180
 280 caaaaaaaaa actgagttag taatttggat gaaaacgaca aaaaaagaca aacctgaaag 240
 281 attcaaatgc acaaaaaaat tattttggat gaaacacgca tatatgatca aacccaagag 300
 282 acgattttta tattttactc gaaattttta agaagttta tattagacag gaatcatgtt 360
 283 agagacatat gccaaacctt ttaattttct aagttcaaac aaaaatctat tattttttcc 420
 284 aaaccacagc tataatttat gtaattttat ctctataaat ggacaaagaa taaaagtttt 480
 285 ctacaaacgg taacaacaag gaagctaccc tcgttttgaa gatagttaag acaataattc 540
 286 aactactttc taactacttt tctcacaaga cttaattttc cacacacatc tttatgacta 600
 287 aatctaccat atgtgatggg ccagtcacac attaatatgt cttcaaccac aagtcggtaa 660
 288 accggaccat cagccacttg gccacgggag cagcttagtg gaaaccgggg gtgcacaacc 720
 289 cctctaattg ttcggttaga agtcgaaaat ttacgatttt tcgtccgaaa attttcgccc 780
 290 accagaactt ttagtcaaac ttgcgcaactg cactttgccc aatgtttctat taaggttttt 840
 291 attttatttt tattattttt tataacgatt ccaaaaattt tttggacata tacatctgac 900
 292 atgcggttata ttagatata gaatttgaac tcgcaacctt ttaattatac gatacatcac 960
 293 caccetgatt tgaattctca ttgggcccac tgggtctataa ataatgcacc aacccctcag 1020

VERIFICATION SUMMARY

DATE: 05/23/2002

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TIME: 17:50:13

Input Set : A:\Seqlist.txt

Output Set: N:\CRF3\05232002\I923844B.raw

L:13 M:270 C: Current Application Number differs, Replaced Current Application No

L:13 M:271 C: Current Filing Date differs, Replaced Current Filing Date